

Seismic Research Program

(Earth Sciences & Seismic Engineering)

Earth Sciences Research Activities

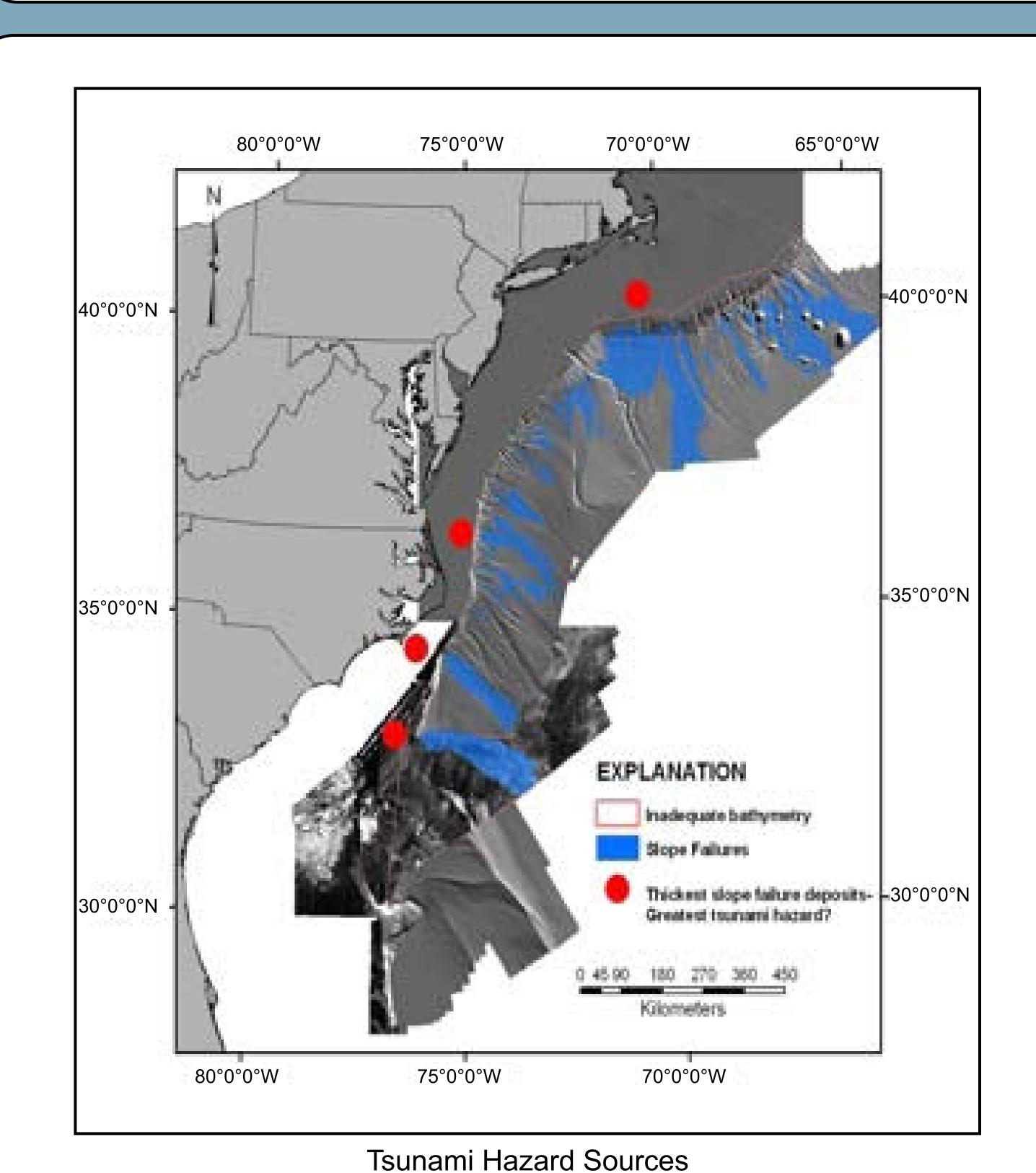
Earthquake Engineering Research Activities

Projects

- Incoherency
 Confirmatory analysis of effects of incoherency on SSI analysis
- CAV Filtering
 Confirmatory analysis of effect of Cumulative Absolute Velocity filter on shape of hazard curves
- Seismic Sources
 Investigate previously unknown seismic activity & identification of new sources
- Strong Ground Motion Records
 Collect, characterize & analyze strong ground motion recordings
- Tsunami Hazards
 Access the tsunami hazards for Gulf & Eastern US coasts

Regulatory Products:

- R.G. 1.208 A Performance-based Approach to Define the Site-Specific Earthquake Ground Motion
- R.G. 1.61 Damping Values for Seismic Design of Nuclear Power Plants
- R.G. 1.198 Procedures and Criteria for Assessing Seismic Soil Liquefaction at NPP Sites
- R.G. 1.132 Site Investigations for Foundations of NPPs
- R.G. 1.29 Seismic Design Classification



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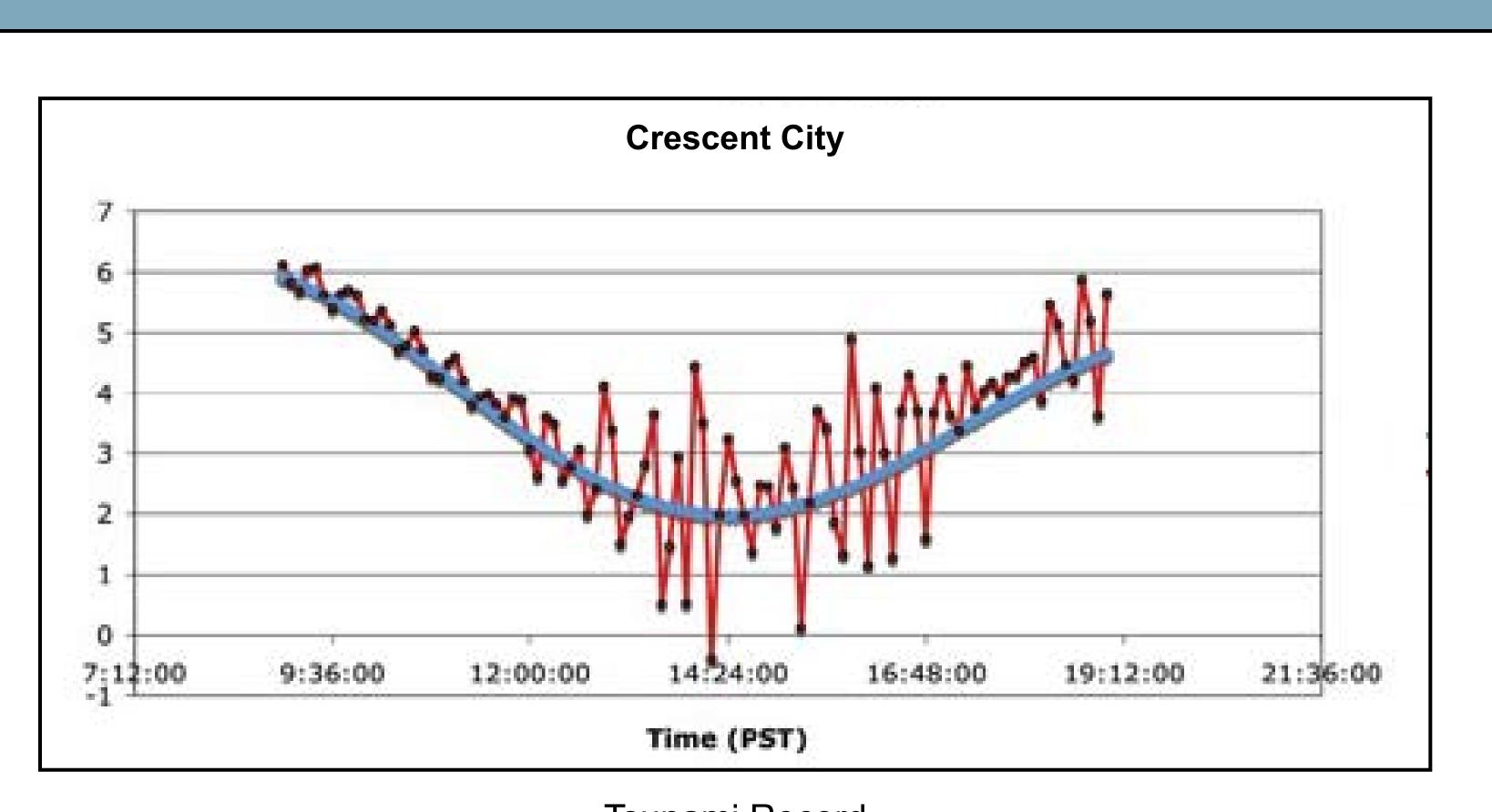
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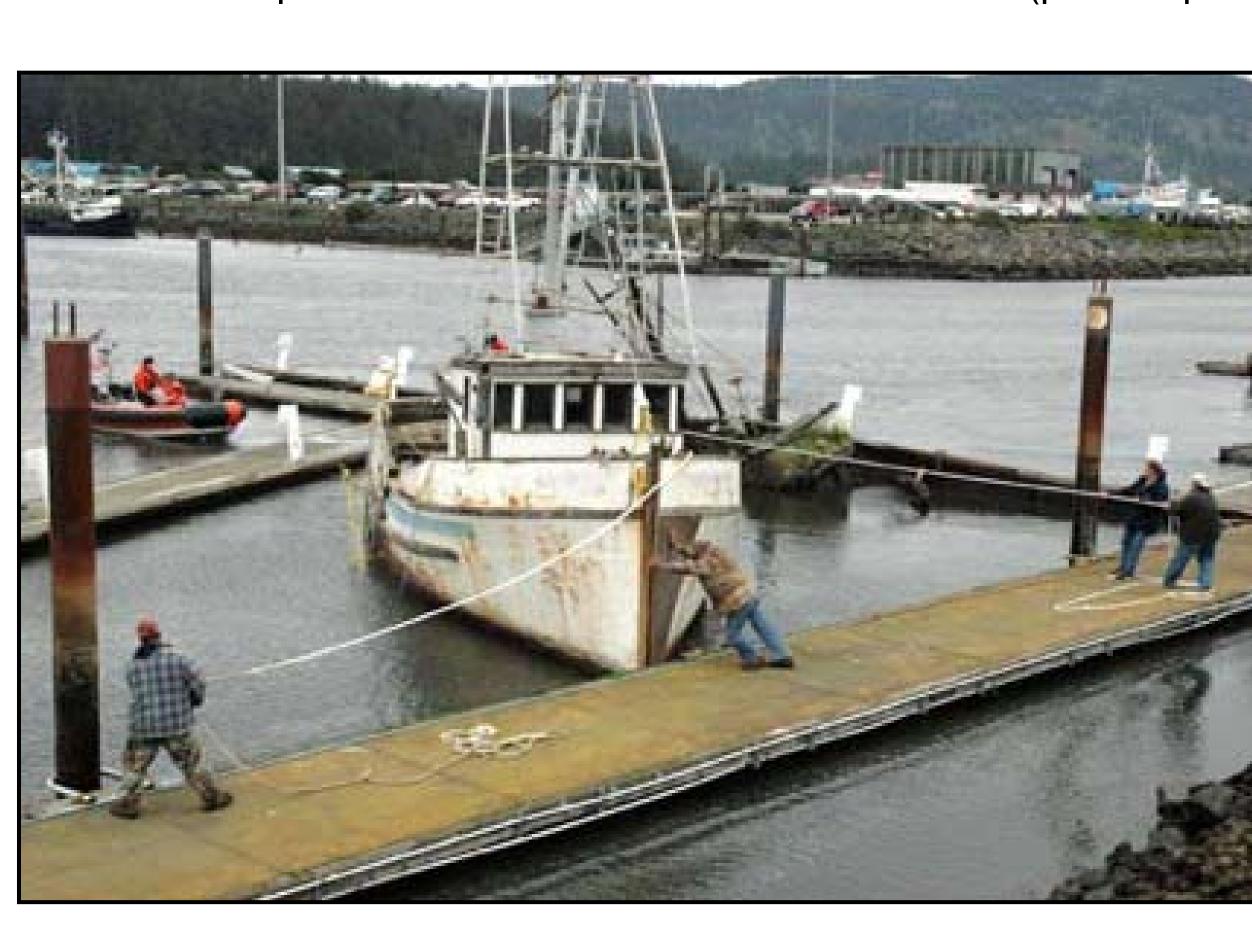
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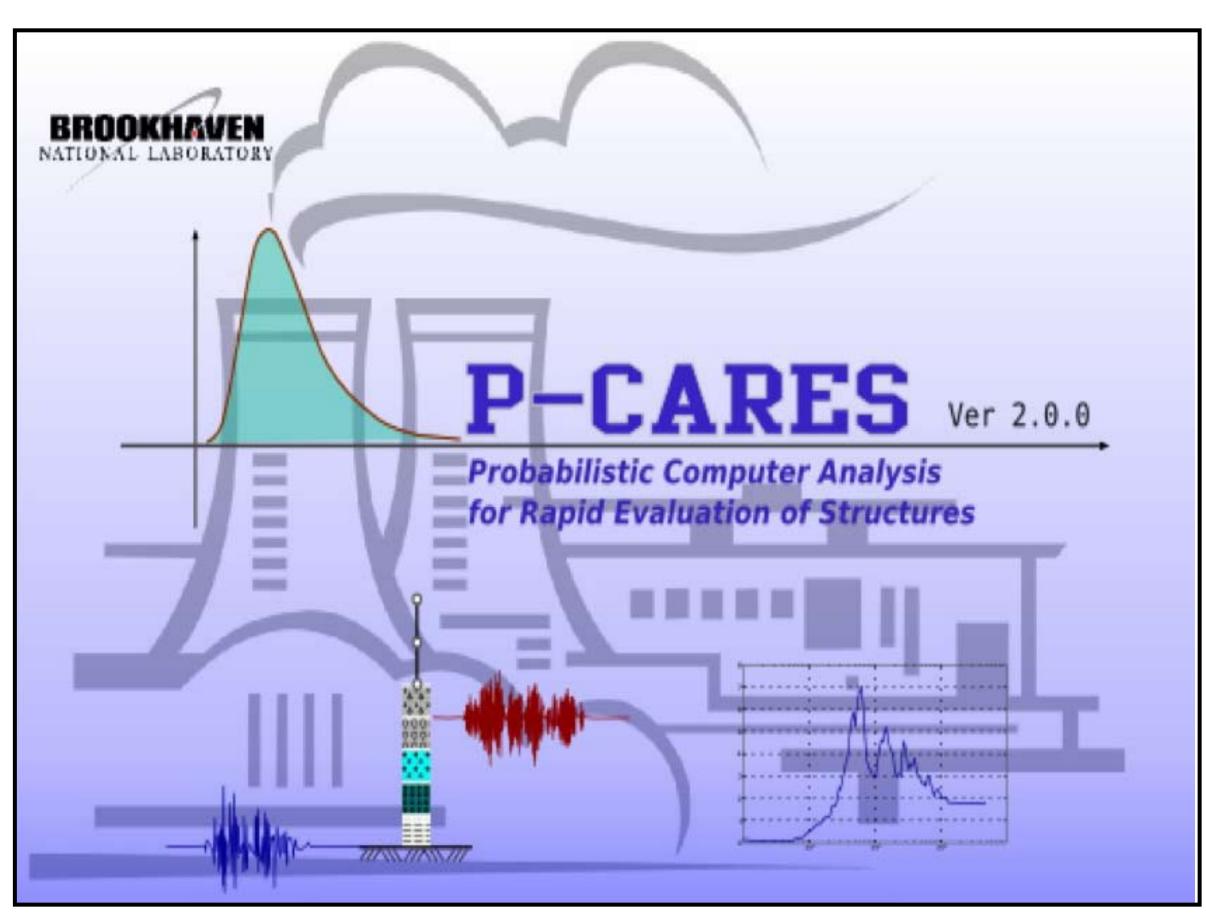
Tsunami Record

Red line - maximum tsunami wave height ~1.5 meters (peak to peak)

Blue line - A portion of 12 hr. ocean tide also ~1 meter (peak to peak)



Tsunami damage to Crescent City, CA November 2006 Ship broke its mooring; Floating dock overturned



First Screen of P-CARES

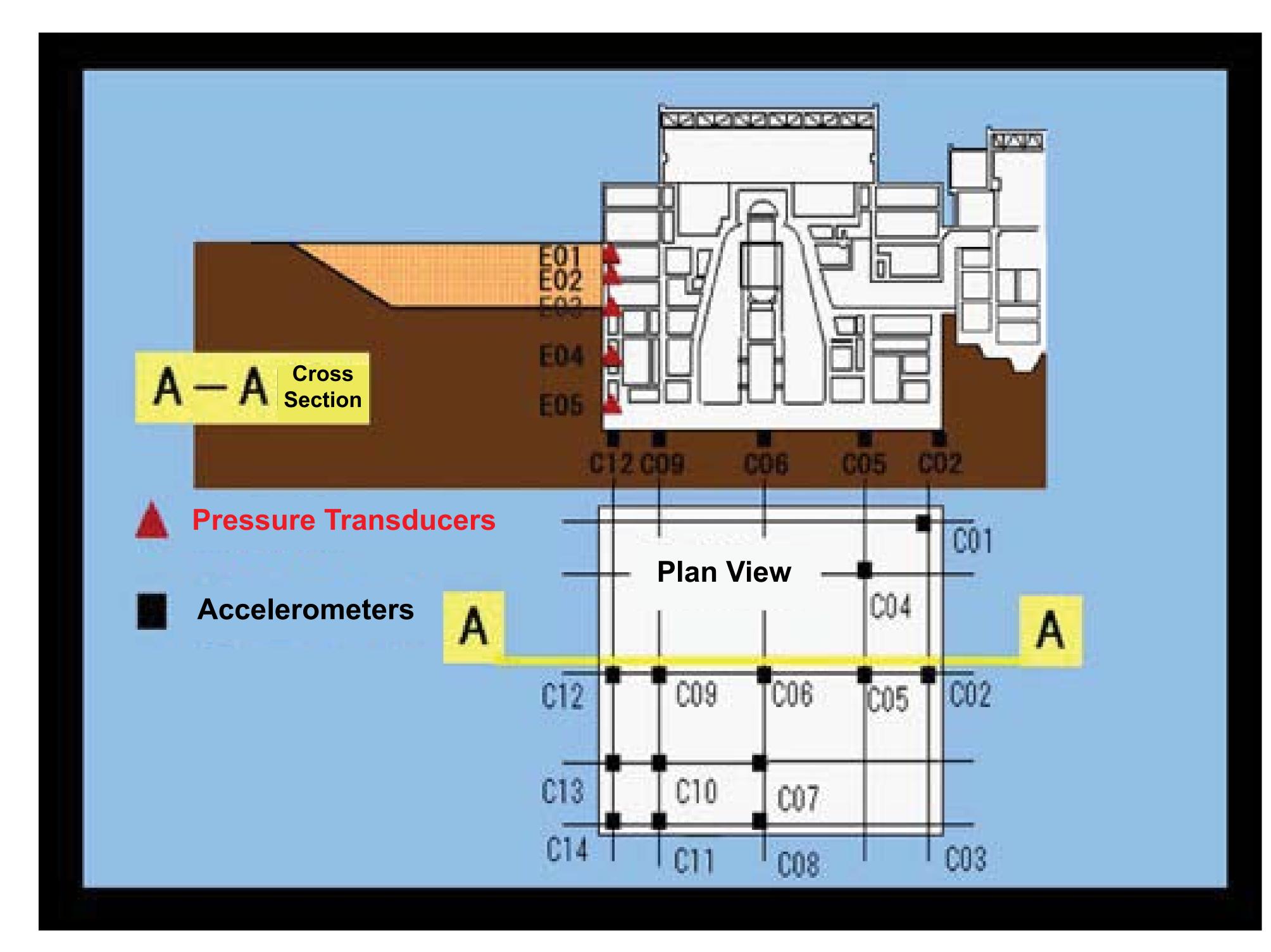


Saline River Fault Kansas Recently discovered fault that influenced seismic sources for Clinton ESP

Projects

- Deeply Embedded Structures
 Response of deeply embedded structures to seismic motions
- PCARES Code

 Update of SSI computer code to account for soil parameter uncertainty
- Collaboration with Japanese In-kind information exchange on large scale seismic experiments conducted by Japan
- Seismic Behavior of Spent Fuel Cask Systems Validation of structural analysis techniques for spent fuel casks



Deeply embedded structure - Japanese collaborative project